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COORDINATED CARE  
IN THE  
FITZSIMONS HEALTH SERVICES REGION

A Graduate Management Project  
Submitted to the Faculty of  
Baylor University  
In Partial Fulfillment of the  
Requirements for the Degree

of

Master of Healthcare Administration

by

Captain Mark J. Perry, MS

May 1991

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| <p>FITZSIMONS ARMY MEDICAL CENTER (FAMC) IS A 448 BED TEACHING FACILITY LOCATED IN AURORA, CO. FAMC HAS RESPONSIBILITY FOR COORDINATING HEALTHCARE FOR MILITARY BENEFICIARIES WITHIN THE FITZSIMONS HEALTH SERVICES REGION (15 STATES) AND DEPARTMENT OF DEFENSE (DOD) REGION III (SEVEN STATES). THIS STUDY SEEKS TO DETERMINE THE ORGANIZATION, FUNCTIONS AND SCOPE OF AN OFFICE TO COORDINATE HEALTHCARE WITHIN THESE REGIONS. A VARIETY OF MILITARY COORDINATED CARE ORGANIZATIONAL APPROACHES ARE EXPLORED, INCLUDING JOINT MILITARY MEDICAL COMMANDS AND CATCHMENT AREA MANAGEMENT. PERSONNEL RESOURCES ARE EXAMINED TO IDENTIFY POSITIONS INVOLVED IN COORDINATED CARE FUNCTIONS. THESE FUNCTIONS INCLUDE PATIENT EVACUATION, COMMUNICATION &amp; MONITORING, DISCHARGE PLANNING, INFORMATION MANAGEMENT, AND CASE MANAGEMENT. A COORDINATED CARE OFFICE IS DESIGNED AROUND RESOURCES CURRENTLY AVAILABLE AT FAMC. FINALLY, REGIONAL CHAMPUS ADMISSIONS AND ADMINISTRATIVE SYSTEMS ARE ANALYZED TO DETERMINE AREAS WHERE HEALTH CARE COORDINATORS CAN IMPLEMENT SYSTEMIC IMPROVEMENTS. &lt;</p> |       |   |  |   |                               |
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DEPARTMENT OF THE ARMY

FITZSIMONS ARMY MEDICAL CENTER  
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REPLY TO  
ATTENTION OF

HSHG-MD (351-3a)

2 Apr 91

MEMORANDUM THRU Colonel Sterling D. Hammond, Chief of Staff,  
Fitzsimons Army Medical Center, Aurora,  
Colorado, 80045-5000

FOR Residency Committee, U.S. Army-Baylor University Graduate  
Program in Health Care Administration (HSHA-IHC), Academy  
of Health Sciences, Fort Sam Houston, Texas 78234

SUBJECT: Graduate Management Project (GMP)

1. In accordance with the instructions contained in the  
Administrative Residency Manual, subject project is submitted  
from Captain Mark J. Perry, former Administrative Resident,  
Fitzsimons Army Medical Center.

2. POC is Captain Perry, AVN 943-4849.

Encl  
GMP

*Mark J. Perry*

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**ABSTRACT**

Fitzsimons Army Medical Center (FAMC) is a 448 bed teaching facility located in Aurora, Colorado. FAMC has responsibility for coordinating healthcare for military beneficiaries within the Fitzsimons Health Services Region (15 states) and Department of Defense (DoD) Region III (7 states). This study seeks to determine the organization, functions, and scope of an office to coordinate healthcare within these regions. A variety of military coordinated care organizational approaches are explored, including Joint Military Medical Commands (JMMC) and Catchment Area Management (CAM). Personnel resources are examined to identify positions involved in coordinated care functions. These coordinated care functions include patient evacuation, communication & monitoring, discharge planning, information management, and case management. A Coordinated Care Office is designed around resources currently available at FAMC. Finally, regional CHAMPUS admissions and administrative systems are analyzed to determine areas where healthcare coordinators can implement systemic improvements.

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**Coordinated Care  
in the  
Fitzsimons Health Services Region**

**I. Introduction**

FAMC is a 448 bed teaching facility located in Aurora, Colorado. It is the Center of Excellence within the Fitzsimons Health Services Region and DoD Region III. The hospital serves nearly 70,000 DoD healthcare beneficiaries living within a 40 mile radius, and provides tertiary care to over 731,000 beneficiaries within its 15 state health services region. Nearly 20% of its inpatients are referred from one of 18 other military medical treatment facilities (MTF) in the region (FAMC, 1990). FAMC's missions include graduate medical education (GME), mobilization planning, patient care, and regional integration. FAMC carries the additional distinction of being one of only three U.S. Army Health Services Command (HSC) installations.

Conditions Which Prompted the Study

HSC is divided into seven Health Services Regions, one surrounding each medical center. Geographically, the Fitzsimons Health Services Region is the largest. The 15 state region includes five U.S. Army Medical

Department Activities (MEDDACs) and four U.S. Army Health Clinics (Harben, 1988).

Fitzsimons is also the medical focal point of DoD Region III, encompassing seven states, 13 major Army and Air Force installations and numerous small bases and posts.

FAMC is responsible for coordinating healthcare within these regions. The HSC Commanding General (CG) has said that " . . . our medical centers must be the cornerstones of our health care delivery system. They should develop centers of clinical excellence and related educational programs. They should become regional integrating centers for clinical programming. Health care regions should use innovation to offer a total health care package" (Major, 1989).

FAMC lacks a fully organized regional healthcare coordination program. Programs currently in place to coordinate healthcare in individual facilities are divided between clinical and patient administration functions. Clinical practitioners diagnose, treat, and refer patients, communicate patient information, and plan for appropriate follow-up care after discharge. Although the Clinical Support Division (CSD) manages the Patient Appointments System, some clinics continue



to schedule their own appointments. The Directorate of Patient Administration (DPA) coordinates admissions and discharges from the hospital, advises patients about healthcare benefits, and coordinates patient transfers between facilities.

Coordinated care requires central coordination, not merely a series of patient hand-offs between individual providers (Corkery, 1989). Coordination must begin at the point of access to the healthcare system, and extend through the patient's discharge and follow-up. Appointment clerks, Health Care Finders (HCFs), case managers, and discharge planners must be linked together. This linkage can involve organizational and/or informational ties. The nature and extent of these ties is the subject of this paper.

#### Statement of the Management Problem

The problem is to determine the organization, functions, and scope of an office to coordinate healthcare within the Fitzsimons Health Services Region and DoD Region III.

#### Review of the Literature

Access to "free" medical care is important to DoD healthcare beneficiaries. The capacity of military MTFs to provide this care is resource constrained. The

Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) was designed to improve access to care. CHAMPUS provides Medicare ineligible military retirees and family members with civilian healthcare alternatives when access to military care is limited.

High CHAMPUS costs have resulted in numerous programs to control costs without denying access. A recent study completed by the Government Accounting Office found that military hospital care for patients in four specialties cost from 43 to 52% less than CHAMPUS-funded care. The study recommended adding staff and equipment to military hospitals (Grayson, 1990).

Ethridge and Lamb (1989) demonstrated that case management programs increase access to quality healthcare by reducing the barriers to demand. In any complex bureaucratic service system, such as the military healthcare system, access can be improved by coordinating care and reducing red tape on behalf of the patient.

#### Healthcare Coordination Organizational Approaches

The military healthcare system has devised numerous decentralized methods of coordinating, managing, and controlling healthcare. Some methods are

designed solely to control costs, while others improve access and/or quality. Most involve attempts to manage all or part of the healthcare process. Aside from the actual provision of care, the coordinated care process includes patient referral, evacuation & transfer, communication, monitoring, and discharge planning. Patient information management is at the core of these activities. In addition to the decentralized methods, a few centralized approaches are currently in use.

JMMC. There are currently three JMMCs, with three different structures. The San Antonio JMMC exercises complete command and control of all MTFs in the San Antonio-Corpus Cristi area. The San Francisco JMMC exercises operational control over the MTFs in the San Francisco Bay area. The Delaware Valley JMMC is the least structured of the three, with responsibility only to coordinate care in its area.

The JMMCs, while not associated with FAMC, have regional responsibilities similar to FAMC's. The San Antonio JMMC's plans to improve coordination between facilities include a cross-indexed central appointment system and several ad hoc committees. One such committee works to centralize, coordinate and expand

the number of providers under HCF and Partnership Programs (JMMC, 1989).

CAM. Two Army healthcare facilities in FAMC's Health Services Region are participating in CAM demonstration projects under CHAMPUS. CAM is a preferred provider managed care project. The local hospital commander is given control of CHAMPUS resources for care rendered within a 40-mile radius of the facility. HCFs recommend preferred providers to CHAMPUS beneficiaries when services are not available in military facilities (Evans Army Community Hospital, 1989). Other managed care options include shifting the site of services from hospital to home, second opinion programs, provider incentives, appropriate care protocols, buying protocols, access control, and coordination of benefits (Maurer, 1988).

The increasing cost of managed care leads health care purchasers to question its value (Weisman, 1988). The same holds true for CAM. CAM was developed in an attempt to recapture CHAMPUS workload and control costs. Jones (1990), however, found that Preferred Provider Organizations (PPOs) are not a quick fix for declining market share. True to form, some of the PPO problems noted by Jones have crept into CAM as well.

High start-up costs and activation of previously dormant beneficiaries have made the projects appear very costly. In effect, CAM has allowed CHAMPUS beneficiaries to receive expanded civilian care at reduced costs.

#### Healthcare Coordination Functions

Patient evacuation. The Air Force makes regular patient evacuation stops at Buckley Air National Guard Base, a few miles from FAMC. Patients arrive from Forts Riley, Leavenworth, and Leonard Wood, (Army installations) and Ellsworth, Grand Forks, Hill, McConnell, Minot, Offutt, and Scott Air Force Bases (AFB) (FAMC, 1989). While Fort Sill falls within the region, the Air Force transports patients from Fort Sill to San Antonio. Patients originating at Fort Carson, Warren AFB, and the U.S. Air Force Academy travel to FAMC via ground transportation or helicopter.

Communication and monitoring. Communication between physicians within the region is an essential step in improving continuity of care. The FAMC CG has encouraged the staff to make more consultation visits to other facilities in the region. He has asked physicians who accept referred patients from other facilities to call the referring physician about each

patient. This allows referring physicians to continue to monitor their patients' progress. He has installed fax machines to transmit copies of patient treatment summaries to referring physicians.

Discharge planning. Discharge planning involves an inter-disciplinary team of administrators, staff nurses, physicians, psychiatrists, utilization review coordinators, social workers, physical, speech, and occupational therapists, dietitians, and community health nurses (Corkery, 1989). Perhaps the staff nurse, being the closest to the patient, is the key to discharge planning. After all, it is the staff nurse who must identify those patients who will need continued care upon discharge (Corkery, 1989).

Information management (IM). "The entire health care delivery system, and more particularly the hospital care delivery system, is built on the appropriate people having the appropriate information at the right time in order to deliver the optimal care to the patient" (Pierskalla & Woods, 1988). Telephone, facsimile, local area networks, electronic mail, and even the postal service are important parts of an effective regional information network. A hospital information system (HIS), such as the Composite Health

Care System (CHCS) or the Fitzsimons Hospital Information System (FITZHIS), must integrate and facilitate the coordination of clinical, ancillary, and administrative aspects of care.

Pierskalla & Woods (1988) indicated the need for regional information networks and databases for resource planning and control. Currently, the Army Medical Department (AMEDD) endorses CHCS as the ideal HIS. However, no facilities within the region have access to the software. Neither CHCS nor FITZHIS was designed to function on a regional basis. Databases with data from each of the hospitals in the Health Services Region are consolidated at HSC, and do not provide timely data for decision makers at the regional level. There is no DoD regional database nor information network.

Health Care Finders (HCF). HCFs are employed by some facilities to assist CHAMPUS beneficiaries in locating civilian providers who accept CHAMPUS reimbursement. This program tends to increase CHAMPUS utilization, particularly when used in concert with CAM.

Partnership Program. The Partnership Program is divided into internal and external partnership

arrangements. Internal agreements involve civilian providers who treat CHAMPUS beneficiaries in military MTFs at discounted CHAMPUS rates. External agreements involve civilian facilities that provide space and equipment for military providers to treat CHAMPUS beneficiaries, again at a discount from usual rates.

Case management. Case managers are of two primary types. Client-centered managers deal directly with the patient. They assess patient needs, coordinate care, and monitor services provided (Kerr & Birk, 1988). This type case manager seems to fit the model of improving access to care. Direct services often include family/care-giver counseling, client counseling, and nursing home or housing placement (Traska, 1987). The cost-centered case manager is concerned with managing the reimbursible services a patient requires. Henderson & Collard (1988) indicated that coordinating restructured healthcare benefits is pivotal to assuring an effective case management program. Strong (Ethridge & Lamb, 1989) showed that case managed patient lengths of stay were 20% shorter than unmanaged patients. This type of case management is likely to be employed by an insurance company (Kerr & Birk, 1988). Case manager allegiance to clients,



family members, care givers, and third-party payers (Traska, 1987), depends upon organizational values.

Warrick, et.al. (1990) have published the initial findings of an ongoing evaluation of a hospital-based coordinated care demonstration. Their findings indicate that such programs rely heavily upon individual case management for elderly patients.

CM programs are widely diversified. The National Governors Association (NGA) classified these programs according to organizational approach, enrollment methods, and a variety of fiscal characteristics. Hurley & Freund (1988) developed a typology of Medicaid CM Programs classifying 17 program characteristics under six headings. These categories included beneficiary enrollment, organizational approach, case manager participation, CM range of responsibility, CM payment method, and provider payment method.

Table 1 depicts a similar typology of military healthcare coordination models. This typology divides military healthcare coordination programs into five organizational approaches, and seven coordinated care functions. Given this typology, over 200 different programs can be classified. The difficulty lies in choosing the most appropriate approach for FAMC.

**TABLE 1. A Typology of Military Healthcare Coordination Programs**

| Organizational Approaches    | Functions                      |
|------------------------------|--------------------------------|
| Decentralized coordination   | Patient evacuation & transfer  |
| Regional Command & Control   | Monitoring patient care        |
| Regional Operational Control | Discharge planning             |
| Regional Coordination        | Information management         |
| CAM                          | Referring/arranging services   |
|                              | Partnership Program management |
|                              | Case management                |

#### Purpose of the Study

The purpose of this study is to analyze the healthcare coordination options available to FAMC. The general approach includes

- a) identification of healthcare coordination organizational and functional options,
- b) identification of primary duty healthcare coordinators at FAMC,
- c) identification of an appropriate healthcare coordination organizational and functional approach for FAMC,
- d) and identification of clinical and administrative areas where access to military

healthcare could be improved through regional healthcare coordination activities.

## II. Method and Procedures

The method and procedures in this study are closely aligned with methods commonly used by management to assess the environment, set goals, organize to meet goals, and carry out projects to solve problems (Juran, 1989). Having assessed the environment, the FAMC CG has established a goal of coordinating care within the region. These methods and procedures are designed to identify an appropriate organizational approach and pinpoint potential problems for resolution by the organization.

### Subjects

The first subject of this study is the organizational structure of FAMC, with emphasis on healthcare coordination organization and functions. Secondary subjects include the 14 CHAMPUS catchment areas surrounding inpatient MTFs in FAMC's DoD and Health Services Regions.

### Study Design

This study is of a non-experimental design. It begins with team building to organize coordinated care activities meeting FAMC's medical, fiscal, and

political requirements. Once the organization and functions are established, management science (statistical analysis) helps identify healthcare activities potentially lacking in coordination. These activities should become the focus of attention of healthcare coordinators throughout the DoD and Health Services Regions.

#### Data Collection

Information regarding healthcare coordination organization and functions was gathered from military and civilian literature and organized into the typology at Table 1.

FAMC personnel with primary duties involving healthcare coordination were identified by clinical and administrative leaders. These positions were verified against FAMC's Table of Distribution and Allowances (TDA).

FY89 CHAMPUS admissions data for each facility's catchment area was obtained from OCHAMPUS to identify clinical/geographical areas of insufficient access to military healthcare. OCHAMPUS subdivides the data into 27 major diagnostic areas and a total within each catchment area. OCHAMPUS also provided data describing the total number of CHAMPUS-eligible DoD healthcare

beneficiaries in each catchment area as of 20 September 1989.

There are inherent validity and reliability problems in the CHAMPUS database. The data is based on claims received between 1 October 1988 through 31 December 1989 for services rendered during FY89. Approximately 9% of total FY89 claims (not submitted within the 15 month window) are not included in the report. Variability in the timeliness of claims processing by civilian hospitals within the region could skew the data. Nevertheless, the figures are the only published measures of CHAMPUS workload.

#### Statistical Analyses

Admissions in each clinical/geographical area were divided by the number of CHAMPUS-eligible DoD healthcare beneficiaries in the catchment area. This ratio, multiplied by 1,000 provides a standardized measure of CHAMPUS workload within each catchment area of the region. Descriptive statistics include the sum, mean, standard deviation, and variance of standardized CHAMPUS workload within 14 regional catchment areas.

Critical values were calculated using Student's  $t$  with 13 degrees of freedom to identify workload exceeding a 95% confidence interval about the mean in

each diagnostic area. We can be 95% confident that the variability of CHAMPUS workload exceeding these critical values is not due to chance alone. Management should identify the specific causes of this variation and work to correct any problems encountered. This variability could result from insufficient or misguided healthcare coordination within the clinical/geographical area. Identification of these clinical/geographical areas is one of the purposes of this study.

### III. Results

As mentioned in the purpose, the results of the study include:

- a) identification of healthcare coordination organizational and functional options,
- b) identification of primary duty healthcare coordinators at FAMC,
- c) identification of an appropriate healthcare coordination organizational and functional approach for FAMC,
- d) and identification of clinical and administrative areas where access to military healthcare could be improved through regional healthcare coordination activities.

Healthcare Coordination Options

Table 1 depicts a variety of healthcare coordination organizations and functions within the military healthcare system. Three options were eliminated from the typology as unavailable to FAMC, resulting in Table 2. 1) FAMC has not received, and is unlikely to receive command and control authority over the other MTFs in the region, particularly Air Force facilities. 2) Based on the high cost of CAM demonstration projects at Fort Carson and Fort Sill, OCHAMPUS is not considering additional CAM projects. 3) Case managers are not currently employed at FAMC.

TABLE 2. FAMC Healthcare Coordination Options

| Organizational Approaches    | Functions                      |
|------------------------------|--------------------------------|
| Decentralized coordination   | Patient evacuation & transfer  |
| Regional Operational Control | Monitoring patient care        |
| Regional Coordination        | Discharge planning             |
|                              | Information management         |
|                              | Referring/arranging services   |
|                              | Partnership Program management |

Organizational approaches include decentralized coordination, regional operational control, and regional coordination. Functions include patient

evacuation and transfer, monitoring patient care, discharge planning, information management, referring/arranging services, and Partnership Program management.

#### FAMC Healthcare Coordinators

Many people at FAMC coordinate care as part of their overall responsibilities. Physicians and nurses provide actual patient care, and refer patients when clinically indicated. Other individuals spend time coordinating rather than providing care. These include individuals in the Discharge Planning Section, Aeromedical Evacuation Section, Military-Civilian Health Systems Branch, and the Patient Appointment System (Table 3). In addition to the 10 clerks in the Central Patient Appointment System office, numerous other appointment clerks work in separate clinics and services.

#### CHAMPUS Workload

CHAMPUS workload data for each of 27 clinical groups within the 14 regional catchment areas is found in Table 4. Descriptive statistics include the sum, mean, standard deviation and variance across all catchment areas within each clinical group. Total admissions per 1,000 CHAMPUS-eligible DoD healthcare



Table 3. FAMC Healthcare Coordinators

| PARA | LINE | DESCRIPTION                             | GR | MOS   | BR | REQ | AUTH |
|------|------|---|----|-------|----|-----|------|
| 561A | 00   | DISCHARGE PLANNING SECTION              |    |       |    |     |      |
| 561A | 01   | CHIEF DISCHARGE PLANNING                | 03 | 68R00 | MS | 1   | 1    |
| 561A | 02   | SOCIAL WORK OFFICER                     | 03 | 68R00 | MS | 1   | 0    |
| 561A | 03   | BEHAV SCIENCE NCO                       | E7 | 91G40 | NC | 1   | 1    |
| 561A | 04   | BEHAV SCIENCE NCO                       | E6 | 91G30 | NC | 1   | 1    |
| 561A | 05   | BEHAV SCIENCE NCO                       | E5 | 91G20 | NC | 1   | 1    |
| 561A | 06   | BEHAV SCIENCE SP                        | E4 | 91G10 |    | 1   | 1    |
| 561A | 07   | BEHAV SCIENCE SP                        | E3 | 91G10 |    | 1   | 1    |
| 561A | 08   | SOCIAL WORKER                           | 11 | 00185 | GS | 2   | 2    |
| 561A | 09   | SOCIAL WORKER ASSOCIATE                 | 08 | 00187 | GS | 1   | 0    |
| 724E | 00   | AEROMEDICAL EVACUATION SECTION          |    |       |    |     |      |
| 724E | 01   | SENIOR PATIENT ADMIN SP                 | E5 | 71G20 | NC | 1   | 1    |
| 724E | 02   | PATIENT ADMIN SP                        | E4 | 71G10 |    | 2   | 1    |
| 724E | 03   | PATIENT ADMIN SP                        | E3 | 71G10 |    | 1   | 1    |
| 726  | 00   | MILITARY-CIVILIAN HEALTH SYSTEMS BRANCH |    |       |    |     |      |
| 726  | 01   | SUPV HLTH SVC MANAGER                   | 11 | 00671 | GS | 1   | 1    |
| 726  | 02   | CIVILIAN RESOURCE COORD                 | 07 | 00303 | GS | 1   | 1    |
| 726  | 03   | HEALTH BENEFITS ADVISOR                 | 07 | 00962 | GS | 1   | 1    |
| 726  | 04   | BUDGET ASSISTANT (TYPING)               | 05 | 00561 | GS | 1   | 1    |
| 779  | 00   | PATIENT APPOINTMENT SYSTEM              |    |       |    |     |      |
| 779  | 01   | SUPERVISOR MEDICAL CLERK                | 06 | 00679 | GS | 1   | 1    |
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beneficiaries within each catchment area ranged between 15.162 and 93.434. The mean is 37.311, and the standard deviation is 22.045. The disproportionately high variability is largely the result of outlying data elements (93.434 in the case of total CHAMPUS admissions). When these outliers are removed from consideration, the data assumes a more normal distribution. Critical values equal to the upper limit

of the 95% confidence interval about the mean were computed using a Student's  $t$  of 1.771 (d.f. = 13). None of the data exceeded the lower limits of the confidence interval. 29 data elements exceed critical values for their respective clinical groups, and one data element exceeds the critical value for total admissions. These data elements are marked by an \*.

McConnell AFB, with only six beds to support over 20,000 beneficiaries, experienced the highest number of data elements exceeding critical values with 15, followed by Fort Leavenworth (4), Grand Forks AFB and Hill AFB (3), and Ellsworth AFB, Fort Carson, Fort Leonard Wood, and Minot AFB (1). The other six catchment areas had no data elements in excess of the critical values. McConnell AFB also exceeded the critical value for total CHAMPUS admissions per 1,000.

The data demonstrate that in 24 clinical areas in eight catchment areas within the region, significantly more patients receive care under CHAMPUS. Most CHAMPUS admissions within a catchment area are the result of statements of nonavailability from local military facilities. This reflects insufficient access to military care--access that might be increased through improved healthcare coordination between facilities.

Table 4. FY89 Regional CHAMPUS Workload

|                 | ADVERSE<br>REACTIONS | ALLERGY | CARD   | DERM   | ENDO   | GI     | HEM    |
|-----------------|----------------------|---------|--------|--------|--------|--------|--------|
| ELLSWORTH AFB   | 0.279                | 0.279   | 1.046  | 0.070  | 0.209  | 1.115  | 0.070  |
| FITZSIMONS AMC  | 0.359                | 0.216   | 1.150  | 0.000  | 0.007  | 0.455  | 0.168  |
| FT CARSON       | 0.760                | 0.169   | 2.300  | 0.042  | 0.148  | 0.992  | 0.464  |
| FT LEAVENWORTH  | 0.446                | 0.284   | 4.499* | 0.203  | 0.689  | 2.513* | 0.405  |
| FT LEONARD WOOD | 0.214                | 0.000   | 1.977  | 0.000  | 0.214  | 0.748  | 0.267  |
| FT RILEY        | 0.179                | 0.036   | 1.468  | 0.072  | 0.036  | 0.394  | 0.143  |
| FT SILL         | 0.211                | 0.302   | 2.716  | 0.060  | 0.272  | 0.724  | 0.392  |
| GRAND FORKS AFB | 1.412*               | 0.217   | 1.847  | 0.000  | 0.000  | 0.543  | 0.434  |
| HILL AFB        | 0.965                | 0.132   | 2.588  | 0.044  | 0.658  | 1.404  | 0.263  |
| MCCONNELL AFB   | 0.491                | 0.912*  | 4.139* | 0.281* | 1.754* | 2.315* | 0.701* |
| MINOT AFB       | 0.111                | 0.334   | 0.334  | 0.000  | 0.223  | 0.223  | 0.000  |
| OFFUTT AFB      | 0.339                | 0.495   | 1.747  | 0.183  | 0.313  | 1.617  | 0.391  |
| USAF ACADEMY    | 0.416                | 0.069   | 2.360  | 0.069  | 0.069  | 0.555  | 0.208  |
| WARREN AFB      | 0.333                | 0.333   | 2.112  | 0.111  | 0.222  | 1.223  | 0.000  |
| SUM             | 6.516                | 3.778   | 30.282 | 1.134  | 4.806  | 14.820 | 3.908  |
| MEAN            | 0.465                | 0.270   | 2.163  | 0.081  | 0.343  | 1.059  | 0.279  |
| STD DEV         | 0.343                | 0.220   | 1.090  | 0.083  | 0.441  | 0.676  | 0.192  |
| VARIANCE        | 0.118                | 0.048   | 1.166  | 0.007  | 0.194  | 0.456  | 0.037  |
| CRITICAL VALUE  | 1.074                | 0.659   | 4.075  | 0.227  | 1.124  | 2.255  | 0.618  |

|                 | INFECTIOUS<br>DISEASE | NEPHRO | NEURO  | NUTRITION | PULM/<br>RESP | RHEUM | OTHER<br>INT MED |
|-----------------|-----------------------|--------|--------|-----------|---------------|-------|------------------|
| ELLSWORTH AFB   | 0.279                 | 0.488* | 0.976  | 0.000     | 1.464         | 0.000 | 0.349            |
| FITZSIMONS AMC  | 0.048                 | 0.072  | 0.647  | 0.024     | 1.006         | 0.120 | 0.192            |
| FT CARSON       | 0.316                 | 0.211  | 0.485  | 0.000     | 1.625         | 0.422 | 0.612            |
| FT LEAVENWORTH  | 0.405                 | 0.284  | 1.216  | 0.041     | 2.756         | 0.162 | 0.770            |
| FT LEONARD WOOD | 0.160                 | 0.000  | 0.748  | 0.053     | 1.282         | 0.107 | 0.107            |
| FT RILEY        | 0.143                 | 0.072  | 0.573  | 0.000     | 0.501         | 0.036 | 0.107            |
| FT SILL         | 0.241                 | 0.091  | 0.634  | 0.060     | 1.358         | 0.060 | 0.483            |
| GRAND FORKS AFB | 0.217                 | 0.000  | 0.217  | 0.000     | 1.086         | 0.434 | 0.217            |
| HILL AFB        | 0.219                 | 0.439  | 0.833  | 0.395*    | 2.720         | 0.132 | 1.140*           |
| MCCONNELL AFB   | 0.631*                | 0.070  | 2.175* | 0.000     | 3.858*        | 0.351 | 1.333*           |
| MINOT AFB       | 0.000                 | 0.111  | 0.446  | 0.000     | 0.780         | 0.000 | 0.111            |
| OFFUTT AFB      | 0.391                 | 0.156  | 1.095  | 0.026     | 1.643         | 0.130 | 0.469            |
| USAF ACADEMY    | 0.104                 | 0.069  | 0.625  | 0.000     | 1.145         | 0.416 | 0.243            |
| WARREN AFB      | 0.111                 | 0.333  | 1.000  | 0.000     | 2.334         | 0.000 | 0.556            |
| SUM             | 3.268                 | 2.396  | 11.670 | 0.599     | 23.559        | 2.371 | 6.689            |
| MEAN            | 0.233                 | 0.171  | 0.834  | 0.043     | 1.683         | 0.169 | 0.478            |
| STD DEV         | 0.160                 | 0.152  | 0.456  | 0.100     | 0.887         | 0.159 | 0.369            |
| VARIANCE        | 0.025                 | 0.023  | 0.208  | 0.010     | 0.787         | 0.025 | 0.136            |
| CRITICAL VALUE  | 0.516                 | 0.440  | 1.640  | 0.220     | 3.254         | 0.451 | 1.132            |

## Coordinated Care

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Table 4 FY89 Regional CHAMPUS Workload (Continued)

|                 | DENTAL | OB      | GYN    | OPHTHAL | PSYCH 1 | PSYCH 2 | SPECIAL<br>PEDS |
|-----------------|--------|---------|--------|---------|---------|---------|-----------------|
| ELLSWORTH AFB   | 0.000  | 4.671   | 0.418  | 0.070   | 1.255   | 0.837   | 1.255           |
| FITZSIMONS AMC  | 0.072  | 0.766   | 0.192  | 0.000   | 4.048   | 3.090   | 0.120           |
| FT CARSON       | 0.105  | 37.093  | 0.232  | 0.084   | 4.768   | 4.325   | 1.308*          |
| FT LEAVENWORTH  | 0.081  | 31.334  | 3.729* | 0.324*  | 5.675   | 3.567   | 0.608           |
| FT LEONARD WOOD | 0.000  | 1.763   | 0.214  | 0.107   | 4.113   | 3.526   | 0.481           |
| FT RILEY        | 0.000  | 8.489   | 0.358  | 0.072   | 2.865   | 1.540   | 0.788           |
| FT SILL         | 0.030  | 14.483  | 2.806  | 0.060   | 3.862   | 5.461   | 0.815           |
| GRAND FORKS AFB | 0.109  | 9.776   | 1.086  | 0.217   | 0.543   | 1.847   | 0.760           |
| HILL AFB        | 0.175* | 12.370  | 1.360  | 0.175   | 5.965   | 2.325   | 0.790           |
| MCCONNELL AFB   | 0.070  | 51.698* | 3.788* | 0.070   | 2.245   | 5.822*  | 0.281           |
| MINOT AFB       | 0.000  | 6.464   | 0.000  | 0.223   | 1.337   | 4.681   | 0.557           |
| OFFUTT AFB      | 0.026  | 4.772   | 0.652  | 0.104   | 3.129   | 3.676   | 0.704           |
| USAF ACADEMY    | 0.035  | 6.594   | 0.243  | 0.104   | 4.234   | 3.575   | 0.382           |
| WARREN AFB      | 0.000  | 8.782   | 0.556  | 0.111   | 1.445   | 3.001   | 0.000           |
| SUM             | 0.704  | 199.052 | 15.634 | 1.723   | 45.485  | 47.273  | 8.848           |
| MEAN            | 0.050  | 14.218  | 1.117  | 0.123   | 3.249   | 3.377   | 0.632           |
| STD DEV         | 0.052  | 14.494  | 1.280  | 0.081   | 1.641   | 1.379   | 0.361           |
| VARIANCE        | 0.003  | 210.086 | 1.638  | 0.007   | 2.692   | 1.901   | 0.130           |
| CRITICAL VALUE  | 0.142  | 39.887  | 3.383  | 0.267   | 6.154   | 5.818   | 1.272           |

|                 | GEN<br>E,N,T | GEN<br>SURGERY | NEURO-<br>SURGERY | ORTH   | THORACIC<br>SURGERY | UROLOGY | GRAND<br>TOTAL |
|-----------------|--------------|----------------|-------------------|--------|---------------------|---------|----------------|
| ELLSWORTH AFB   | 0.139        | 2.858          | 0.906             | 0.767  | 0.070               | 1.046   | 20.915         |
| FITZSIMONS AMC  | 0.192        | 1.317          | 0.287             | 0.407  | 0.024               | 0.192   | 15.162         |
| FT CARSON       | 0.485        | 2.722          | 0.633             | 1.878  | 0.148               | 0.169   | 62.496         |
| FT LEAVENWORTH  | 1.094        | 4.824          | 0.932             | 1.540  | 0.324               | 1.257   | 69.964         |
| FT LEONARD WOOD | 0.962        | 2.831          | 0.694             | 0.481  | 0.481*              | 0.267   | 21.796         |
| FT RILEY        | 0.358        | 0.931          | 0.681             | 0.645  | 0.036               | 0.287   | 20.809         |
| FT SILL         | 0.241        | 2.263          | 0.603             | 0.634  | 0.121               | 0.513   | 39.496         |
| GRAND FORKS AFB | 1.629*       | 2.933          | 1.086             | 2.716* | 0.000               | 0.869   | 30.198         |
| HILL AFB        | 0.746        | 4.123          | 0.702             | 1.842  | 0.088               | 1.316   | 43.907         |
| MCCONNELL AFB   | 0.842        | 5.261*         | 1.122             | 1.543  | 0.000               | 1.684*  | 93.434*        |
| MINOT AFB       | 1.560*       | 0.892          | 0.223             | 0.000  | 0.000               | 0.223   | 18.834         |
| OFFUTT AFB      | 0.834        | 3.546          | 0.678             | 1.304  | 0.183               | 0.626   | 29.229         |
| USAF ACADEMY    | 0.312        | 2.221          | 0.763             | 1.423  | 0.069               | 0.347   | 26.653         |
| WARREN AFB      | 0.778        | 2.334          | 0.556             | 2.668  | 0.000               | 0.556   | 29.458         |
| SUM             | 10.174       | 39.057         | 9.868             | 17.847 | 1.543               | 9.349   | 522.350        |
| MEAN            | 0.727        | 2.790          | 0.705             | 1.275  | 0.110               | 0.668   | 37.311         |
| STD DEV         | 0.460        | 1.272          | 0.248             | 0.799  | 0.135               | 0.471   | 22.045         |
| VARIANCE        | 0.211        | 1.618          | 0.062             | 0.639  | 0.018               | 0.222   | 485.972        |
| CRITICAL VALUE  | 1.541        | 5.043          | 1.144             | 2.690  | 0.349               | 1.501   | 76.352         |

"REPRODUCED AT GOVERNMENT EXPENSE"

#### IV. Discussion

FAMC can improve access to military care throughout the region. An organization designed to facilitate regional innovation in both clinical and administrative systems is a good place to start.

##### Organizational Approach

Three organizational approaches are germane to FAMC's regional situation. FAMC must also develop an organization that ties together its local coordination efforts. The Coordinated Care Office must satisfy both regional and local coordinated care requirements.

##### Decentralized Coordination

This is essentially the status quo. Each facility within the region is free to coordinate care in its own best interests. Since CHAMPUS care involves no direct costs to military MTFs, there is little incentive to reduce CHAMPUS workload in clinical areas where a military facility lacks resources. FAMC must improve upon this approach.

##### Regional Operational Control

The FAMC CG is involved in the rating chain for each of the MEDDAC Commanders in the Health Services Region. Thus, FAMC has some operational control over the Army facilities within the region, even without

official orders mandating the arrangement. Air Force Major Commands (MAJCOMs) command and control the medical facilities supporting their subordinate Air Force Bases. If FAMC were able to obtain the support of the Assistant Secretary of Defense (Health Affairs), this arrangement could be very fruitful. Without that support, FAMC must look at regional coordination.

#### Regional Coordination

A regional coordination organization would have to build upon the efforts previously made by the CG and FAMC's staff. Selected clinical and administrative leaders from FAMC have made numerous visits to the MTFs in the region. These consultant visits have resulted in increased referrals to FAMC from some facilities, but not all. The inconvenience of aeromedical evacuation and overnight stays at FAMC for outpatient clinic visits is a large hurdle. On the other hand, the largest CHAMPUS workload in the region is located only 65 miles south of FAMC. Regional coordination efforts must be aimed squarely at those activities with the largest potential for CHAMPUS savings.

#### Coordinated Care Office

From a medical perspective, coordinated care is most likely to succeed when it supports the medical

staff. In this respect, coordinated care activities must be largely transparent to the physician. When the physician writes a medical order or referral, the necessary care and coordination are taken for granted.

The political implications are perhaps the most difficult to resolve. The positions in Table 3 fall under three different department level organizations within FAMC. Additional appointment clerks, numbering in excess of 20, are spread throughout the clinical departments and services. A completely centralized patient appointment system has met resistance from clinical leaders, who desire decentralized control of the appointment system. Organizational approaches which pull personnel away from the clinics will meet stiff opposition, resulting in rivalries detracting from patient care.

A centralized coordinated care office would have to overcome this obstacle, as would any centralized regional coordination program. A decentralized operation with central planning and oversight such as the Patient Appointment System, is much more palatable. A matrix organization wherein coordinators fall under the dual supervision of the Coordinated Care Office and

the department in which they work seems to best fit FAMC's needs.

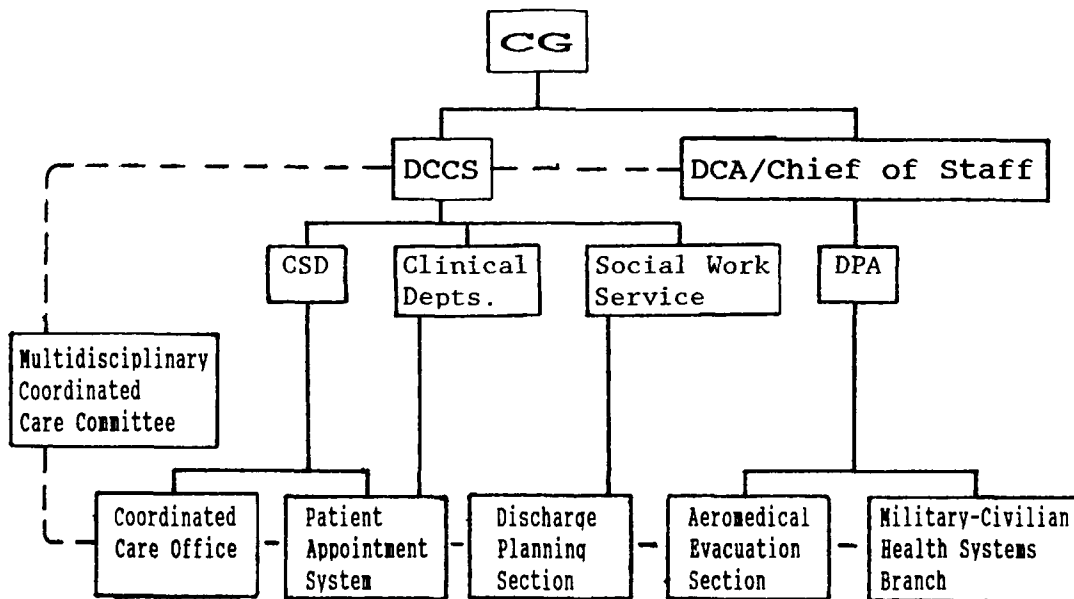
The Coordinated Care Office could conceivably fall under either the CSD or the DPA. Warrick, et al. (1990) found that 2/3 of the coordinated care programs they studied reported to clinical, rather than administrative directors. To maintain a responsive clinical orientation, ensure transparent coordination from the clinicians' perspective, and place the office in the approval chain for CHAMPUS Statements of Nonavailability, it may be best to place it under the CSD. Physicians are more likely to support the CSD, which is on the clinical side of the house at FAMC. The DPA, on the other hand, is both physically and philosophically separate from most clinicians. Located behind the main hospital, DPA's primary missions include documenting patient care and beneficiary eligibility.

The Coordinated Care Office should receive technical guidance and support from a multi-disciplinary committee (Corkery, 1989). This advisory committee should include representatives from the Directorates of Patient Administration, Information Management, Resource Management, and Nutrition Care.



Clinical representatives should include the Departments of Medicine, Surgery, Psychiatry, OB/GYN, Primary Care & Community Medicine, Pediatrics, and Nursing, as well as the Social Work and Physical Medicine & Rehabilitation Services. On paper, the organization would appear as in Figure 1.

**Figure 1. FAMC Coordinated Care Structure**



#### Improving Access

Access to military care is a function of both clinical and administrative systems. Clinical protocols and systems affect access to specific and related clinical areas. Administrative procedures are

likely to apply to hospital wide systems, effecting access on a broader scale.

#### Clinical Improvements

Clinical access protocols are those procedures determining who will be treated when and where by whom. A classic anecdote of such a protocol was cited by Dr. Bill Mohlenbrock (1990):

A crusty old Navy physician entered a waiting room full of sailors, called the group to attention, and said, "Everybody with back pain: Left, Face! Forward, March! Ain't seein' no back pain today. Next case."

Even the most well-conceived clinical access protocols can reduce access to the military healthcare system. When this happens, CHAMPUS beneficiaries often seek care from civilian providers, causing CHAMPUS workload and costs to rise. While access protocols are not solely responsible for CHAMPUS costs, insufficient access to military care was a necessary condition for establishing CHAMPUS. Pinpointing excessively high CHAMPUS workload may lead to the identification of inappropriate clinical access protocols.

#### Administrative Improvements

The key to effective coordination lies in the information management system. Each coordinator in the system must have access to appropriate patient

information. For example, physicians must have access to lab results, operative reports, nurses notes, etc. The appointment clerk must know the patient's beneficiary category, name, sponsor's SSN, etc. FITZHIS does manage this kind of information, and different coordinators are authorized different levels of access. FITZHIS has grown out of the Veterans Administration HIS, meeting FAMC's needs piecemeal, without regard for coordinated care.

FAMC might consider a regional cross-indexed central appointment system. Even a low-cost alternative--installing FITZHIS terminals at outlying regional MTFs to facilitate FAMC appointments--would improve access. Such a system would be particularly beneficial in the area extending from Fort Carson north to F.E. Warren AFB. Along this 170 mile stretch of Interstate-25, there are six MTFs with widely divergent CHAMPUS usage rates.

Patient Transfer Systems are another administrative area which might improve access. Innovative means of inducing the Air Force to improve Aeromedical Evacuation System responsiveness to regional needs are a must. A regularly scheduled patient transfer system operating between Fort Carson

and F.E. Warren AFB (and all points in between) could significantly improve access in the immediate area surrounding FAMC.

The CG laid the groundwork for improved communication and patient monitoring between facilities by installing telefacsimile (FAX) machines. A MODEM interface between outlying facilities and the FITZHIS system might facilitate referring physician access to patient information. Examination of the HSC Electronic Mail Directory reveals an astounding lack of physician access on the system. Of the 27 active E-mail accounts at FAMC, only two belong to physicians--the CG and the DCCS. This is another area where communication between physicians, who are seldom at their desks, could be enhanced on a regional basis.

#### V. Conclusions and Recommendations

FAMC is the clinical center of excellence within DoD Region III and the Fitzsimons Health Services Region. As such one of FAMC's missions is to coordinate high quality care within these regions. FAMC currently has no fully organized coordinated care program, either for internal or regional coordination. Numerous activities and individuals at FAMC coordinate

care within given functional areas, but do not cross functional lines.

A Coordinated Care Office should be established under the Clinical Support Division. This office would be responsible for monitoring and improving healthcare coordination. The office would also provide technical guidance and assistance to the Patient Appointment System, Discharge Planning Section, Aeromedical Evacuation Section, and the Military-Civilian Health Systems Branch.

A multi-disciplinary Coordinated Care Committee should be established to provide guidance and support to the Coordinated Care Office. This committee would include representatives from the Directorates of Patient Administration, Resource Management, Information Management, and Nutrition Care. Clinical members of the committee would represent the Departments of Medicine, Surgery, Psychiatry, OB/GYN, Primary Care & Community Medicine, Pediatrics, and Nursing, as well as the Social Work and Physical Medicine & Rehabilitation Services.

The primary functions of the Coordinated Care Office and Committee are designed to improve access to the military healthcare system throughout the region.

These functions include patient evacuation and transfers, patient care monitoring, discharge planning, information management, referring/arranging services, and Partnership Program management. The Office and Committee would also examine clinical access protocols in hospitals where the local CHAMPUS workload significantly exceeds normal levels (Table 4).

This study has determined the organization, scope and responsibilities of the Coordinated Care Office at FAMC. By improving coordination of clinical and administrative systems, FAMC can improve access to high quality care throughout the DoD and Health Services Regions.

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**Appendix A. Definitions**

ACGME: Accreditation Council for Graduate Medical Education.

AFB: Air Force Base.

AHA: American Hospital Association.

AMH: Accreditation Manual for Hospitals.

CAM: Catchment Area Management.

CG: Commanding General.

CHAMPUS: Civilian Health and Medical Program of the Uniformed Services.

CHCS: Composite Health Care System.

CM: Case Management.

DoD: Department of Defense.

FAMC: Fitzsimons Army Medical Center.

FITZHIS: Fitzsimons Hospital Information System.

FY: Fiscal Year.

HCA: Hospital Corporation of America.

HCF: Health Care Finder.

HSC: U.S. Army Health Services Command.

IM: Information Management.

JCAHO: Joint Commission on Accreditation of Healthcare Organizations.

JMMC: Joint Military Medical Command.

MAJCOM: U.S. Air Force Major Command.

MEDDAC: U.S. Army Medical Department Activity.  
MODEM: Modulator-Demodulator.  
MTF: Medical Treatment Facility.  
NGA: National Governors Association.  
OCHAMPUS: Office of the Civilian Health and Medical  
Program of the Uniformed Services.  
PPO: Preferred Provider Organization.  
QA: Quality Assurance.  
RM: Risk Management.  
TDA: Table of Distribution & Allowances.